

WHAT WE CLAIM IS:

1. A semiconductor light-emitting device,
comprising a substrate and a first electrically conductive
type semiconductor layer or layers, an active layer and a
5 second electrically conductive type semiconductor layer or
layers stacked on a major surface of the substrate,
wherein:

a major surface of the first electrically conductive
type semiconductor layer is provided with a recess, and
10 the first electrically conductive type semiconductor
layer is contiguous to the active layer formed within and
without said recess in two or more plane orientations.

2. The semiconductor light-emitting device
according to claim 1, wherein said semiconductor layers
15 and said active layer are each a gallium nitride
semiconductor layer.

3. The semiconductor light-emitting device
according to claim 1, wherein the first electrically
conductive type is an n-type and the second electrically
20 conductive type is a p-type.

4. The semiconductor light-emitting device
according to claim 1, wherein said active layer has a
quantum well structure including a well layer comprising
an In-containing gallium nitride semiconductor.

25 5. The semiconductor light-emitting device
according to claim 1, wherein at least one of surfaces of
the first electrically conductive type semiconductor layer
contiguous to the active layer defines the major surface

of the first electrically conductive type semiconductor layer.

6. The semiconductor light-emitting device according to claim 1, wherein at least one of surfaces of 5 the first electrically conductive semiconductor layer contiguous to the active layer is a surface vertical to the major surface of the first electrically conductive type semiconductor layer.

7. The semiconductor light-emitting device 10 according to claim 1, wherein the major surface of the first electrically conductive type semiconductor layer is a C plane of the gallium nitride semiconductor.

8. The semiconductor light-emitting device according to claim 6, wherein the surface vertical to the 15 major surface of the first electrically conductive type semiconductor layer is an A or M plane of the gallium nitride semiconductor.

9. The semiconductor light-emitting device according to claim 8, wherein said active layer comprises 20 a plurality of continuous M or A planes that make an angle of 30° , 60° , 90° , 120° , 150° , 210° , 240° , 270° , 300° or 330° , as viewed from an upper surface of the first electrically conductive type semiconductor layer having a recess.

25 10. The semiconductor light-emitting device according to claim 8, wherein said active layer has a striped M or A plane, as viewed from an upper surface of

the first electrically conductive type semiconductor layer having a recess.

11. The semiconductor light-emitting device according to claim 1, wherein said active layer comes in
5 contact with the second electrically conductive type semiconductor layer in a plane orientation contiguous to the first electrically conductive type semiconductor layer.

12. The semiconductor light-emitting device according to claim 1, wherein a first electrode is formed
10 on at least a part of a surface of the first electrically conductive type semiconductor layer, said surface being exposed by etching of the second electrically conductive type semiconductor layer and said active layer, and a second electrode is formed on at least a part of a surface
15 of the second electrically conductive type semiconductor layer.

13. The semiconductor light-emitting device according to claim 1, wherein said active layer emits light components having two or more different major peak
20 wavelengths, in which said light components are mixed to show a color.

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14. A semiconductor light-emitting device fabrication process, comprising:

a first step of forming a first electrically
25 conductive type semiconductor layer on a growth substrate,
a second step that is carried out after the first step to form a recess in the first electrically conductive type semiconductor layer by etching,

a third step that is carried out after the second step to form an active layer contiguously to two or more different plane orientations of the first electrically conductive type semiconductor layer, and

5 a fourth step of forming a second electrically conductive type semiconductor layer.

15. The semiconductor light-emitting device fabrication process according to claim 14, wherein said semiconductor layers and said active layer are each a
10 gallium nitride semiconductor layer.

16. The semiconductor light-emitting device fabrication process according to claim 15, wherein said growth substrate in the first step is a sapphire substrate whose major surface is defined by a C plane, and the first
15 electrically conductive type semiconductor layer is grown on the C plane of said substrate.

17. The semiconductor light-emitting device fabrication process according to claim 15, wherein said recess in the second step is formed by exposing an M plane
20 or/and an A plane of the gallium nitride semiconductor layer.

18. The semiconductor light-emitting device fabrication process according to claim 15, wherein said active layer has a quantum well structure including a well
25 layer comprising an In-containing gallium nitride semiconductor layer.